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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,056	10/07/2003	Aleksandar Kojic	11403/49	7846

26646 7590 02/07/2005

KENYON & KENYON  
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NEW YORK, NY 10004

EXAMINER
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SOLIS, ERICK R

ART UNIT	PAPER NUMBER
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3747

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/681,056

Applicant(s)

KOJIC ET AL.

Examiner

Erick R Solis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/7/2004</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3,6,10-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Agama et al (US Patent No. 6694944). This reference teaches an arrangement which may be used in HCCI combustion wherein a pre-chamber (42) is filled with air and fuel and is then compressed so as to autoignite. A valve is timed to open upon auto-ignition of the air-fuel mixture in the pre-chamber so as to allow the heated gases to ignite the mixture in the main combustion chamber (36). A glow plug may be used to provide additional heat. See the abstract, col. 2, lines 3-8, lines 22-36, col. 3, lines 28-36, col. 4, lines 11-14 and lines 50-55.

3. Claims 1-3,6,15,16 and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Sun et al (US Patent Application Publication 2004/0237928). See the abstract and paragraph 28.

4. Claims 1-3,6,15,16 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Bailey (US Patent 5067458). See the abstract.

*Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4,5,7,8,15-20,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agama et al. Agama et al applies as above, but does not appear to teach how high a temperature the glow plugs are heated to, and although Agama does teach that it is known to enrich the fuel mixture to aid in starting ignition in a pre-chamber (see col. 1, line57 - col. 2, line8), Agama does not appear to enrich the mixture. It would have been obvious to one of ordinary skill in the art to have enriched the air-fuel mixture in the pre-chamber since this would have been an alternate way of aiding the self-ignition within the pre-chamber. Furthermore, the degree of enrichment and temperature of the glow plugs are considered to be obvious matters of design choice. Furthermore, the use of additives to aid in initiating the combustion is also known and considered an alternate equivalent way of aiding in the initiation of combustion in the pre-chamber. Regarding the use of an electronic actuator Agama et al teaches being able to vary piston speed in response to speed and load of the engine. If not inherent then it certainly would have been obvious to use an electronic controller for carrying out the variable response (see col. 3, lines 44-53.)

Claims 9,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agama et al in view of either of Merritt (US Patent No. 4898126) or Cherry (UAS Patent No. 5109817).

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Agama et al applies as above, but does not appear to teach a catalyst for aiding in initiating auto-ignition. Merritt teaches that it is known to coat the wall of a combustion chamber to aid in ignition. Cherry teaches applying a catalytic sleeve on a pre-chamber (see Fig.1, item S). It would have been obvious to coat the walls of Agama et al's pre-chamber with a catalyst since as taught by either of Merritt or Cherry it is well known to use a catalyst to aid in initiating ignition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick R. Solis whose telephone number is (703) 308-2651. The examiner can normally be reached on Monday-Thursday.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



Erick R. Solis  
Primary Examiner  
Art Unit 3747

ers

February 3, 2005